

WHAT IS CLAIMED IS:

1. A liquid crystal display comprising:
a liquid crystal panel including a plurality of the data lines extending in a column direction, a plurality of the gate lines in a row direction, and a plurality
5 of first to third color pixels displaying image based on signals received from the data lines and the gate lines and arranged in a matrix;
a data driver applying data voltages required for image display to the data lines; and
a signal controller receives a plurality of first to third color image data
10 for the first to third color pixels, supplying the received image data to the data driver, and generates control signals required for driving the liquid crystal panel,
wherein the signal controller changes an inversion type when dot blocks are repeated in a predetermined pattern, each dot block includes a predetermined number of successive pairs of adjacent two pixels included in at
15 least one color pixels among the first to third color pixels, and a magnitude of difference in gray between two pixels in each pair is equal to or larger than a critical value.
2. The liquid crystal display of claim 1, wherein the critical value has the first to third values for the first to third colors, and the first to third values
20 are equal or different.
3. The liquid crystal display of claim 2, wherein the first to third colors are red, green and blue colors, respectively, and the second value is smaller than the first and third values.
4. The liquid crystal display of claim 1, wherein the dot blocks
25 include first and second dot blocks with the gray differences of opposite signs, and the predetermined pattern includes a first dot block in a first row and a second dot block located in the same columns as the first dot block and in a second row adjacent to the first row.
5. The liquid crystal display of claim 1, wherein the predetermined
30 pattern includes a first dot block in a first row and a second dot block located in the same columns as the first dot block and in a second row adjacent to the first

row, and the first and second blocks have the gray differences of an equal opposite sign.

6. The liquid crystal display of claim 4 or 5, wherein the pixels in each row are grouped into a plurality of blocks, each block including even
5 number of pixels, and the signal controller determines whether each block is one of the dot blocks.

7. The liquid crystal display of claim 6, wherein the signal controller comprises:

a block counter for counting ordinal of each block among the blocks in a
10 row; and

a line counter for counting ordinal of a row including the blocks.

8. The liquid crystal display of claim 7, wherein the block counter counts the blocks by counting clock cycles after a data enable signal indicating sections for inputting the image data becomes a high level.

15 9. The liquid crystal display of claim 7, wherein the block counter counts the blocks by counting clock cycles after a predetermined number of clocks from raise of a horizontal synchronization signal to be input to the signal controller to a high level.

20 10. The liquid crystal display of claim 7, wherein the line counter counts the rows based on timing of a data enable signal indicating sections for inputting the image data for a row or on timing of a horizontal synchronization signal.

25 11. A method of driving a liquid crystal display including a liquid crystal panel including a plurality of the data lines extending in a column direction, a plurality of the gate lines in a row direction, and a plurality of pixels arranged in a matrix, and a signal controller receiving a plurality of the RGB image data and generating control signals for driving the liquid crystal panel, the method comprising:

30 calculating difference in gray between every two image data applied to a pair of adjacent odd and even pixels in each block including pixels in a row for each of first to third colors;

determining that a block is first or second dot block depending on a sign of the gray difference when a magnitude of the gray difference between the odd pixel and the even pixel in each pair in the block for at least one color is equal to or larger than a critical value;

5 determining a pattern formed by first and second dot blocks located in adjacent row and the same columns; and

 changing an inversion type of the liquid crystal display when the pattern is repeated in the entire pixels.

12. The method of claim 11, wherein the critical value has the first to
10 third values for the first to third colors, and the first to third values are equal or different.

13. The method of claim 12, wherein the first to third colors are red, green and blue colors, respectively, and the second value is smaller than the first and third values.

14. The method of claim 11, wherein the determination of a pattern
15 determines whether a previous block in a previous row and in columns is the first or second dot block when a current block in a current row and the columns is the first or second dot block.

15. The method of claim 14, wherein the rows including the blocks
20 are counted based on timing of a data enable signal indicating sections for inputting the image data for a row or on timing of a horizontal synchronization signal.

16. The method of claim 14, wherein the blocks are counted by
25 counting clock cycles after a horizontal synchronization signal to be input to the signal controller becomes in a high level.

17. The method of claim 14, wherein the current block is determined
to be a one-dot block when the current block is the first dot block and the
previous block is the second dot block, and the change of an inversion type
comprises comparison of the number of the one-dot blocks with the number of
30 total blocks.

18. The method of claim 14, wherein the current block is determined to be a double-dot block when both the current block and the previous block are the first dot blocks or the second dot blocks, and the change of an inversion type comprises comparison of the number of the double-dot blocks with the number of total blocks.

19. The method of claim 18, wherein the change of an inversion type further comprises comparison of the number of the double-dot blocks with the total number of the first and second dot blocks when the total number of the first and second dot blocks is equal to or larger than a predetermined number of the total number of the blocks.

20. The method of claim 14, wherein the current block is determined to be a first double-dot block when both the current block and the previous block are the first dot blocks, or the current block is determined to be a second double-dot block when both the current block and the previous block are the second dot blocks, and the inversion type is changed when the number of the first dot blocks is larger than a first critical value and the number of the first double-dot blocks is equal to a predetermined percentage of the number the first dot blocks, or the number of the second dot blocks is larger than a second critical value and the number of the second double-dot blocks is equal to a predetermined number of the second dot blocks.